

IN THE CLAIMS

Please amend the claims as follows:

1. – 8. (cancelled).

9. (previously amended) A computing device implemented method for executing a split-mask, masking countermeasure for improving the resistance, to power analysis attacks, of a processing unit of the computing device performing a defined cryptographic function using a key, the method comprising the processing unit executing the following steps:

obtaining the key and a random key mask value r ;

obtaining a set of n random input values $m_{in1}, \dots m_{inn}$;

defining a masked function by masking the defined cryptographic function with the value $m_{in1} \wedge \dots \wedge m_{inn}$;

masking the key with the random key mask value r to define the value $mkey$;

obtaining a set of random split mask values $m1, \dots mn-1$;

defining a split mask value mn to be $r \wedge m_{in1} \wedge \dots \wedge m_{inn} \wedge m1 \wedge \dots \wedge mn-1$; and

using the values $m1, \dots, mn$ and $mkey$ to define input for the masked function.

10. (original) The method of claim 9 in which the encryption function is a table look-up.

11. (currently amended) The method of claims 9 or 10 in which masking is a bitwise exclusive or operation carried out on binary values.

12. (previously amended) A computing device implemented method for executing a split-mask, masking countermeasure for improving the resistance, to power analysis attacks, of a processing unit of the computing device performing a cryptographic function using a key to encrypt a plaintext value using a look up on a defined look-up table, the method comprising the processing unit executing the following steps:

obtaining the key and a random key mask value r ;

defining a value $mkey$ by masking the key with the random key mask value r ;

obtaining a set of n random input values m_{in1}, \dots, m_{inn} ;

defining a masked table by masking the defined look-up table with the value $m_{in1} \wedge \dots \wedge m_{inn}$;

obtaining a set of split mask values comprising random values m_1, \dots, m_{n-1} ;

defining a split mask value m_n to be $r \wedge m_{in1} \wedge \dots \wedge m_{inn} \wedge m_1 \wedge \dots \wedge m_{n-1}$; and

masking the plaintext with the split mask values m_1, \dots, m_n and $mkey$ to define input for the masked table, the masked table to be used in place of the defined look-up table in the cryptographic operation.

13. (original) The method of claim 12 in which masking is a bitwise exclusive or operation carried out on binary values.

14. – 29. (cancelled).

30. (previously amended) A computing device program product for improving the resistance, to power analysis attacks, of a processing unit using a key to perform a defined cryptographic function, the computing device program product comprising a computer usable storage medium having computer readable program code means stored in said storage medium, and comprising

program code means for obtaining the key and a random key mask value r ,

program code means for obtaining a set of n random input values m_{in1}, \dots, m_{inn} ,

program code means for defining a masked function by masking the defined cryptographic function with the value $m_{in1} \wedge \dots \wedge m_{inn}$,

program code means for masking the key with the random key mask value r to define the value $mkey$,

program code means for obtaining a set of random split mask values m_1, \dots, m_{n-1} ,

program code means for defining a split mask value m_n to be $r^{m_{in1}} \dots^{m_{inn}} m_1 \dots^{m_{n-1}}$, and

program code means for using the values m_1, \dots, m_n and $mkey$ to define input for the masked function.

31. (original) The computing device program product of claim 30 in which the encryption function is a table look-up.
32. (currently amended) The computing device program product of claims 30 and 31 in which masking is a bitwise exclusive or operation carried out on binary values.
33. (previously amended) A computing device program product for improving the resistance, to power analysis attacks, of a processing unit performing a cryptographic function using a key to encrypt a plaintext value using a look up on a table, the computing device program product comprising a computer usable storage medium having computer readable program code means stored in said storage medium, and comprising

program code means for obtaining the key and a random key mask value r ,

program code means for obtaining a set of n random input values m_{in1}, \dots, m_{inn} ,

program code means for defining a masked table by masking the defined look-up table with the value $m_{in1} \dots^{m_{inn}}$,

program code means for masking the key with the random key mask value r to define the value $mkey$,

program code means for obtaining a set of random split mask values m_1, \dots, m_{n-1} ,

program code means for defining a split mask value mn to be $r^{m_{in}1} \wedge \dots \wedge m_{in}n^{m1} \wedge \dots \wedge mn-1$, and

program code means for masking the plaintext with the values $m1, \dots, mn$ and $mkey$ to define input for the masked table.

34. (original) The computing device program product of claim 33 in which masking is a bitwise exclusive or operation carried out on binary values.

35. – 58. (cancelled)